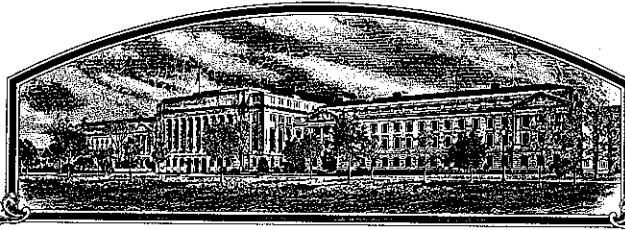


No.

9300210



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

*Asgrow Seed Company*

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (P.L. 56-2, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'A3510'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 29th day of September in the year of our Lord one thousand nine hundred and ninety-five.

Attest:

*Marsha A. Stanton*

Commissioner

Plant Variety Protection Office

Agricultural Marketing Service

*Wm. J. Feltman*  
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE  
(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1 NAME OF APPLICANT(S) (as it is to appear on the Certificate) ASGROW SEED COMPANY		2 TEMPORARY DESIGNATION OR EXPERIMENTAL NO XP3510	3 VARIETY NAME A3510
4 ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) 9638-190-23 Gull Road, Building 190 Kalamazoo, MI 49001		5 PHONE (include area code) 616-384-2351	<b>FOR OFFICIAL USE ONLY</b> PVPO NUMBER 9300210 Date May 10, 1993 Time 9:00 <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM Filing and Examination Fee \$ 2325.00 Date May 7, 1993 Certificate Fee \$ 275.00 Date Aug. 15, 1995
6 GENUS AND SPECIES NAME Glycine max	7 FAMILY NAME (Botanical) Leguminosae		
8 CROP KIND NAME (Common Name) soybean	9 DATE OF DETERMINATION September 1987		
10 IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) corporation		11 IF INCORPORATED, GIVE STATE OF INCORPORATION Delaware	
		12 DATE OF INCORPORATION March 22, 1968	

Wayne Hoener, Asgrow Seed Company, 9638-190-23, Gull Rd., Bldg. 190, Kalamazoo, MI 49001  
616-384-2351

Alan Walker, Asgrow Seed Company, 5926 Hwy. 14E., Janesville, WI 53546 608-755-1777

13 NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS  
PHONE (include area code)

14 CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a ☒ Exhibit A. Origin and Breeding History of the Variety
- b ☒ Exhibit B. Novelty Statement
- c ☒ Exhibit C. Objective Description of Variety
- d ☒ Exhibit D. Additional Description of Variety
- e ☒ Exhibit E. Statement of the Basis of Applicant's Ownership
- f ☒ Seed Sample (2,500 viable untreated seeds) Date Seed Sample mailed to Plant Variety Protection Office \_\_\_\_\_
- g ☒ Filing and Examination Fee (\$2.150) made payable to "Treasurer of the United States"

15 DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act)

☐ YES (If "YES" answer items 16 and 17 below) ☒ NO (If "NO" skip to item 18 below)

16 DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?

☐ YES ☒ NO

17 IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?

☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED

18 DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?

☐ YES (If "YES," through ☐ Plant Variety Protection Act ☐ Patent Act Give date \_\_\_\_\_) ☒ NO

19 HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETING IN THE U.S. OR OTHER COUNTRIES?

☐ YES (If "YES," give names of countries and dates) ☒ NO

20 The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT (Owner(s)) <i>Wayne Hoener</i>	CAPACITY OR TITLE <i>Superior Prod. Mgr.</i>	DATE 4/14/93
SIGNATURE OF APPLICANT (Owner(s)) <i>Alan K. Walker</i>	CAPACITY OR TITLE <i>Director of Super. Research</i>	DATE 4-14-93

## EXHIBIT A

### Origin and Breeding History of A3510

- Pedigree:** 84P323-29/X3213  
84P323-29 = XX3830/X3685, X3830 = Williams/V68-920, V68-920 = York/Dare, X3213  
= Q7212-0136R/A3127, Q7212-0136R = Williams/Mack
- 1984/85** Cross made in winter nursery at Isabela, Puerto Rico.
- 1985 to 1987** Advanced population from  $F_1$  to  $F_4$  via modified single seed descent at Isabela, Puerto Rico.
- 1987** Grew bulk population at Oxford, Indiana and selected and threshed individual  $F_5$  plants.
- 1988** Grew  $F_{5,6}$  progeny rows at Oxford, Indiana. Progeny row BP85192 B88-09817 was selected and harvested in bulk. The seeds were checked and verified for uniform seed coat luster and hilum color.
- BP85192 B88-09817 was determined to be a stable and unique line in September 1987.
- 1989** BP85192 B88-09817 was entered in yield test 9HP319 as entry 23 which was grown at Oxford, Indiana and Stonington, Illinois. It produced uniform stands and was selected for its high yield and excellent standability.
- 1990** BP85192 B88-09817 was entered in yield test OS351-27 as entry 27 which was grown at eight locations in Illinois, Indiana, and Ohio. Individual plants were harvested from the bulk and threshed. The line was named XI3510.
- 1991** XI3510 was entered in yield test 1CV350 as entry 6 which was grown at 15 locations in six states. Progeny rows grown at Oxford, Indiana from plants harvested in 1990. Uniform pure rows were harvested and bulked.
- 1991/92** Bulk of pure rows increased in winter nursery at Isabela, Puerto Rico.
- 1992** XI3510 was designated XP3510 and grown in yield tests 2CV350 (entry 5) and 2HV301 (entry 23) which were grown at 23 locations in 8 states.
- Seed from the winter nursery increase was planted at Stonington, Illinois for increase.
- XP3510 was nominated for release and full production and designated A3510.
- Yield trials in 1989 to 1992 and seed production in 1992 indicate that A3510 is uniform and stable. As with other soybean varieties, variants can occur for almost any character during the course of repeated sexual production.

## EXHIBIT B

### Novelty Statement Concerning A3510 Soybean

To our knowledge the soybean varieties that most closely resemble A3510 are A3322, A3733, and A3935.

1. Flower Color:	A3510	Purple
	A3322	White
	A3733	Purple
	A3935	Purple
2. Pubescence Color:	A3510	Tawny
	A3322	Tawny
	A3733	Tawny
	A3935	Tawny
3. Pod Wall Color:	A3510	Tan
	A3322	Tan
	A3733	Tan
	A3935	Brown
4. Hilum Color:	A3510	Black
	A3322	Black
	A3733	Black
	A3935	Black

### 5. Reaction to races of *Phytophthora megasperma* f. sp. *glycinea*:

	Race											
	1	3	4	5	7	8	9	13	16	17	21	25
A3510	R	R	S	S	R	R	R	R	S	R	R	S
A3322	R	R	S	S	R	R	R	R	S	R	R	S
A3733	S	S	S	S	S	S	S	S	S	S	S	S
A3935	S	S	S	S	S	S	S	S	S	S	S	S

U.S. DEPARTMENT OF AGRICULTURE  
 AGRICULTURAL MARKETING SERVICE  
 LIVESTOCK, MEAT, GRAIN & SEED DIVISION  
 PLANT VARIETY PROTECTION OFFICE  
 BELTSVILLE, MARYLAND 20705

EXHIBIT C  
 (Soybean)

OBJECTIVE DESCRIPTION OF VARIETY  
 SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) ASGROW SEED COMPANY	TEMPORARY DESIGNATION XP3510	VARIETY NAME A3510
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 9638-190-23 Gull Road, Building 190 Kalamazoo, MI 49001		FOR OFFICIAL USE ONLY PVPO NUMBER 9300210

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

## 1. SEED SHAPE:



1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)  
 3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)

2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)  
 4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

## ★ 2. SEED COAT COLOR: (Mature Seed)

1 = Yellow

2 = Green

3 = Brown

4 = Black

5 = Other (Specify) \_\_\_\_\_

## 3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

1 = Dull ('Corsoy 79'; 'Braxton')

2 = Shiny ('Nebsoy'; 'Gasoy 17')

## ★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

## ★ 5. HILUM COLOR: (Mature Seed)

1 = Buff

2 = Yellow

3 = Brown

4 = Gray

5 = Imperfect Black

6 = Black

7 = Other (Specify) \_\_\_\_\_

## ★ 6. COTYLEDON COLOR: (Mature Seed)

1 = Yellow

2 = Green

## ★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

1 = Low

2 = High

## ★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

1 = Type A (SP1<sup>a</sup>)2 = Type B (SP1<sup>b</sup>)

## ★ 9. HYPOCOTYL COLOR:

1 = Green only ('Evans'; 'Davis')

2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')

3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')

4 = Dark Purple extending to unifoliate leaves ('Hodgson'; 'Coker Hampton 268A')

## ★ 10. LEAFLET SHAPE:

1 = Lanceolate

2 = Oval

3 = Ovate

4 = Other (Specify) \_\_\_\_\_

4

## 11. LEAFLET SIZE:

☐ 21 = Small ('Amsoy 71'; 'A5312')  
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

## 12. LEAF COLOR:

☐ 21 = Light Green ('Weber'; 'York')  
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

## ★ 13. FLOWER COLOR:

☐ 2

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

☐ 1

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

☐ 2

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

☐ 21 = Slender ('Essex'; 'Amsoy 71')  
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

## ★ 17. PLANT HABIT:

☐ 3

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

☐ 061 = 000  
9 = VI2 = 00  
10 = VII3 = 0  
11 = VIII4 = I  
12 = IX5 = II  
13 = X

6 = III

7 = IV

8 = V

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★

☐ 0Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)

★

☐ 0Bacterial Blight (*Pseudomonas glycinea*)

★

☐ 0Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★

☐ 0Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojina*)

★

☐ 0

Race 1

☐ 0

Race 2

☐ 0

Race 3

☐ 0

Race 4

☐ 0

Race 5

☐ 0

Other (Specify)

☐ 0Target Spot (*Corynespora cassicola*)☐ 0Downy Mildew (*Peronospora trifoliorum* var. *manshurica*)☐ 0Powdery Mildew (*Microspheera diffusa*)

★

☐ 0Brown Stem Rot (*Cephalosporium gregatum*)☐ 0Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

## 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

## FUNGAL DISEASES: (Continued)

- ★ ☐ 0 Pod and Stem Blight (*Diaporthe phaseolorum* var. *sojae*)
- ☐ 0 Purple Seed Stain (*Cercospora kikuchii*)
- ☐ 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★ ☐ 2 Race 1 ☐ 2 Race 2 ☐ 2 Race 3 ☐ 1 Race 4 ☐ 1 Race 5 ☐ 1 Race 6 ☐ 2 Race 7
- ☐ 2 Race 8 ☐ 2 Race 9 ☐ 0 Other (Specify) \_\_\_\_\_

## VIRAL DISEASES:

- ☐ 0 Bud Blight (Tobacco Ringspot Virus)
- ☐ 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★ ☐ 0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- ☐ 0 Pod Mottle (Bean Pod Mottle Virus)
- ★ ☐ 0 Seed Mottle (Soybean Mosaic Virus)

## NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★ ☐ 0 Race 1 ☐ 0 Race 2 ☐ 0 Race 3 ☐ 0 Race 4 ☐ 0 Other (Specify) \_\_\_\_\_
- ☐ 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★ ☐ 0 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★ ☐ 0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- ☐ 0 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- ☐ 0 Reniform Nematode (*Rotylenchulus reniformis*)
- ☐ 0 OTHER DISEASE NOT ON FORM (Specify): \_\_\_\_\_

## 20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★ ☐ 0 Iron Chlorosis on Calcareous Soil
- ☐ 0 Other (Specify) \_\_\_\_\_

## 21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ☐ 0 Mexican Bean Beetle (*Epilachna varivestis*)
- ☐ 0 Potato Leaf Hopper (*Empoasca fabae*)
- ☐ 0 Other (Specify) \_\_\_\_\_

## 22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	A3322	Seed Coat Luster	A3322
Leaf Shape	A3322	Seed Size	A3322
Leaf Color	A3322	Seed Shape	A3322
Leaf Size	A3322	Seedling Pigmentation	A3322

## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/ POD
				CM Width	CM Length	% Protein	% Oil		
Submitted A3510	132	1.7	88			42.6	20.0	14.5	2.6
Name of Similar Variety A3322	130	1.6	84			43.1	19.1	15.4	2.6

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.



Asgrow Seed Company  
PVP Application A3510 Soybean  
March 1993

## EXHIBIT D

### Additional Description of the Variety

A3510 is a mid maturity group III soybean cultivar that matures 2.2 days later than A3322 and possesses the Rps1c gene for resistance to races 1 to 3, 7 to 11, 13, 17, and 21 of Phytophthora root rot and excellent tolerance to other races of this disease. A3510 is adapted to central Ohio, central Indiana, central Illinois, southern Iowa, northern Missouri, southeastern Nebraska, and northeastern Kansas. A3510 is characterized by excellent standability, indeterminate plant type, high peroxidase activity, ovate leaves, purple flowers, tawny pubescence, black hila, tan pod walls, and dull seed coat luster.

8

Asgrow Seed Company  
PVP Application A3510 Soybean  
March 1993

## EXHIBIT E

### Statement of Basis of Applicant Ownership

A3510 was originated and developed by Dr. E. H. Paschal II, Asgrow plant breeder. By agreement between Asgrow Seed Company, all rights to any invention, discovery or development made by employees are assigned to the company. No rights of such invention, discovery or development are retained by the employee.